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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,639	10/31/2001	Liu He	4327P005	4461

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EXAMINER

BLACKWELL RUDASIL, GWENDOLYN A

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/001,639

Applicant(s)

HE ET AL.

Examiner

Gwendolyn A. Blackwell-Rudasill

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 22-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 12-20, and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application Publication no. 1 022 587 A1, EP '587.

EP '587 disclose an anti-reflection coating the can be multilayered. The coating structure in relation to the placement of the high-, low-, and middle-refractive index layers are demonstrated in figures 1(b) and 1(c). The low-refractive layer is formed on top of the high-refractive index layer, which is nearest to the substrate unless there is a middle-refractive index layer. If a middle refractive index layer is used in the coating, the middle-refractive index layer is formed over the substrate with the high-refractive index layer formed thereon and the low-refractive index layer formed on the high-refractive index, (page 4, sections 0026-0030).

EP '587 disclose that the high index layer has a refractive index ranging from 1.65-2.40 with a thickness of 5 nm – 100 μ m. In addition, the high index layer contains inorganic fine particle such as metals, meeting the requirements of claims 1-4, 12, and 15-16, (pages 5-6, sections 0036-0053).

EP '587 further disclose that the low index layer has a refractive index ranging from 1.20-1.55 having a thickness from 50-400 nm. Silicon dioxide can be contained in the low index layer, (page 11, sections 0097-0105). The binder polymer used in the low index layer can be a

Art Unit: 1775

monomer having two or more ethylenic unsaturated groups such as a methacrylic acid, (pages 15-16, sections 0153-0160). Example 1 demonstrates that UV light is used to cure the high and low index layers, meeting the requirements of claims 5-10, 17-20, and 30-31, (page 19, sections 0192-0196).

EP '587 continue to disclose a middle index layer that is located between the substrate and the high index layer. The refractive index for the middle index layer ranges from 1.55-1.70. Inorganic particles can also be added to the layer, (pages 16-17, sections 0166-0175). Example 12 demonstrates that the middle index layer can have a thickness of 75 nm, meeting the requirements of claims 13-14, (page 26, section 0241).

Claims 1-10, 12-20, and 30-31, either directly or indirectly, contain process limitations such that one layer has to be formed by solvent and one layer by a radiation curable material. The claims are product by process claim wherein the patentability of the product does not depend on its method of production. "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *See MPEP 2113*. Absent an evidentiary showing to the contrary, the process limitations within claims 1-10, 12-20, and 30-31 do not provide patentable distinction over the prior art of record.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 1775

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 11, 21, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication no. 1 022 587 A1, EP '587 as applied to claims 1-10, 12-20, and 30-31 above, and further in view of United States Patent no. 4,765,729, Taniguchi.

EP '587 disclose the limitations of claims 1-10 and 12-20 above. In addition, the low index layer includes a silane-coupling agent, (page 12-14 sections 0121-0136). Furthermore, the low index layer can contain also contain initiators for the polymerization of the inorganic particles, (page 15, sections 0147-0148). EP '587 do not specifically disclose the type silane agents as exemplified by Applicant.

Taniguchi et al disclose an anti-reflection film wherein the film utilizes crosslinked polymers to improve heat, hot water and chemical resistance, (column 3, lines 50-53). Organic silicon compounds such as trialkoxysilanes, dialkoxysilanes, (column 4, lines 3-49), and tetraalkoxysilane, (column 7, lines 1-16), can be used in the film. In addition to the above-mentioned compounds a fluorine containing mixture such as a perfluoro group containing (meth)acrylate can be added to the silicon compounds, (column 7, lines 21-25).

Art Unit: 1775

EP '587 and Taniguchi et al disclose inventions that are utilized in the formation of anti-reflective films used on display devices. EP '587 disclose that silane-coupling agents are used in the low index layer. Taniguchi et al disclose organic silicon compounds that are used as crosslinking agents wherein the formula used by Taniguchi et al, (column 3, line 5), satisfies the formula requirements as set forth in EP '587 that can be used as a coupling agent, (page 13, sections 0121-0126). As such, it would have been obvious to one skilled in the art to use the organic silicon compounds of Taniguchi et al in the anti-reflection film of EP '587 to create a low index layer that has improved heat, hot water and chemical resistance, (Taniguchi et al, column 3, lines 50-53).

Claims 1-21 and 30-32, either directly or indirectly, contain process limitations such that one layer has to be formed by solvent and one layer by a radiation curable material. The claims are product by process claim wherein the patentability of the product does not depend on its method of production. "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *See MPEP 2113*. Absent an evidentiary showing to the contrary, the process limitations within claims 1-21 and 30-32 do not provide patentable distinction over the prior art of record.

Response to Arguments

6. Applicant's arguments filed September 24, 2003 have been fully considered but they are not persuasive.

Art Unit: 1775

Applicant contends that the method of making the two layers as now claimed in present claims 1-21 and 30-32 provide patentable distinction over the prior art because the method of making the anti-reflective film according to EP '587 has all of the layer made from a radiation curable material instead of one layer made from a radiation curable material and the layer containing the crystalline metal made from solvent as presently claimed by Applicant.

This is not found persuasive as Applicant has not made an objective evidentiary showing to the contrary that the EP '587 would not provide that same benefits as disclosed by Applicant. Applicant has indicated that the invention as presently claimed provide advantages over the prior art of record such as improved production yield and a more porous crystalline metal compound containing layer. However, these features have not been claimed nor has there been a comparison of the presently claimed invention to the prior art used to make the rejections.

Applicant also contends that there is no motivation from the cited references to combine EP '587 and Taniguchi. While it is recognized that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, both of the inventions are to anti-reflection films that are used on display devices. EP '587 disclose that silane-coupling agents are used in the low index layer, (pages 12-14, sections 0121-0136). Taniguchi gives more specific examples of the silane materials. Because EP '587 and Taniguchi are analogous art, it would be within the skill of one in the art at

Art Unit: 1775

the time of invention to modify the invention of EP '587 with the alkoxysilane of Taniguchi et al to create a low index layer that has improved heat, hot water and chemical resistance, (Taniguchi et al, column 3, lines 50-53).

The rejections of present claims 1-21 under 102(b) and 103(a) stand. New claims 30-32 have been incorporated into the prior art rejections as set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn A. Blackwell-Rudasill whose telephone number is (703) 305-9741. The examiner can normally be reached on Monday - Thursday; 6:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gwendolyn A. Blackwell-Rudasill
Examiner
Art Unit 1775

GBR
gbr


DEBORAH JONES
SUPERVISORY PATENT EXAMINER